

ork

The Pit and the Pendulum

one occasion, they looked at these four sets of data, each of which has a mean of 20.

Least → Set A 19, 19, 20, 20, 21, 21

Set B 10, 10, 20, 20, 30, 30

Set C 12, 13, 13, 27, 27, 28

Set D 9, 20, 20, 20, 20, 31

A	A	A	A
C	C	B	B
B	D	C	D
D	B	D	C

1. Based on your own intuition, arrange the four sets of data from the set that is "least spread out from the mean" to the set that is "most spread out from the mean." Explain your reasons for the order you choose. (You and your group members may want to discuss this together, but each of you should make your own decision.)

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2. Rinky liked the idea of using the **range** of the data to measure data spread. To find the range, you just subtract the smallest number in the list from the largest one. For example, you find the range for set *D* by taking the difference $31 - 9$, which is 22.

$$\begin{array}{l} A - 2 \\ B - 20 \\ C - 16 \\ D - 22 \end{array}$$

- Find the range for each of the other sets of data.
- Based on Rinky's method, arrange the four sets of data from the set that is "least spread out from the mean" to the set that is "most spread out from the mean."
- Does your result from Question 2b change your mind about your answer to Question 1? Explain.

A C B D

Note: You will learn about Dinky's and Minky's ideas in *Homework 11: Dinky and Minky Spread Data*.



In *Data Spread*, you saw Rinky's idea for measuring data spread. His two friends had other suggestions.

For your convenience, here are the sets of data from that activity:

A	Set A	19, 19, 20, 20, 21, 21	total = 4
D	Set B	10, 10, 20, 20, 30, 30	total = 40
B	Set C	12, 13, 13, 27, 27, 28	total = 44
C	Set D	9, 20, 20, 20, 20, 31	total = 22

1. Dinky proposed finding the distance of each number in the list from the **mean** and then just adding those distances to get a measure for data spread.

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the mean.”

2. **Minky's idea** was to ignore the highest and lowest data items, removing just one item at each end even if there were ties. Then, he said, one should find the remaining data item that's farthest from the original mean and use that distance to measure data spread.

$D < A < B$

For instance, with set B , Minky would drop the lowest number (one of the 10's) and the highest number (one of the 30's), leaving just 10, 20, 20, and 30.

Because the mean of set B is 20, the maximum distance from any of these numbers to the mean is 10. So Minky would assign the number 10 to set B .

- Find the number that Minky would assign to each of the other sets of data.
 - Based on Minky's method, arrange the four sets of data from the set that is “least spread out from the mean” to the set that is “most spread out from the mean.”
3. Examine your answers to Questions 1b and 2b, as well as the answer to Question 2b of *Data Spread*. Whose measure of data spread—Rinky's, Dinky's, or Minky's—is closest to the answer you gave in Question 1 of *Data Spread*? Explain your decision.
4. Invent a way to measure data spread that is different from these three. Describe how it works, and explain whether or not you think it is better

Group	Mean Pendulum Period (in seconds)
1	1.16
2	1.22
3	1.31
4	1.11
5	1.30

1.29

f/b

data

changing weight
no effect

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Interactive Mathematics Program

Add up First

$$1 \text{ numbers} \quad 1 = 1$$

$$2 \text{ numbers} \quad 1+2 = 3$$

$$3 \text{ numbers} \quad 1+2+3 = 6$$

4 numbers

5 numbers

10 numbers

$$1+2+3 \dots + 99+100 = 5050$$

100 numbers

n numbers

$$t = \text{top \#} \quad f = \text{final \#}$$

$$t-1 = x$$

$$10-1 = 9$$

$$\frac{1}{2}x \cdot t = y$$

$$\left(\frac{1}{2} \cdot 9\right) \cdot 10 = 45$$

$$y+t = f$$

$$45+10 = 55$$